

# International Workshop on Spin-Orbit Driven Phenomena in Quantum Matter

*Where spin and orbit intertwine: new frontiers in quantum materials*

January 12-13, 2026

Aula D - Department of Physics and Astronomy "A. Righi", University of Bologna - via Irnerio 46, Bologna, Italy

## 12 January

9:30 **Welcome**

*Chair: C. Franchini*

10-10:30 Liviu Chibotaru KU Leuven (Belgium) Multipolar exchange interaction and complex order in insulating lanthanides

10:30-11 Sergii Khmelevskyi TU Wien (Austria) Multipolar order in f-electron systems and its interaction with crystal lattices

**11-11:30 Coffee break**

*Chair: V. Mitrović*

11:30-12 Silvia Picozzi Univ. Milano Bicocca (Italy) Modelling of the interplay between inversion symmetry breaking and spin-orbit-coupling

12-12:30 Federico Mazzola University of Padova (Italy) Unconventional magnetism

12:30-13 Marco Moretti Politecnico di Milano (Italy) RIXS interferometry on cluster Mott insulators

*Chair: L. Pourovskii*

14:30-15 Alessandro Stroppa CNR SPIN l'Aquila (Italy) The dual role of killer Jahn-Teller modes and screw symmetry in chiral ferromagnetic 2D hybrid perovskites

15-15:30 Mario Cuoco CNR SPIN Salerno (Italy) Multipolar Phases in Spin-Orbit Coupled Matter

15:30-16 Vesna Mitrović Brown University (USA) Novel glimpse into ground states of spin-orbit entangled quantum matter

**16-16:30 Coffee break**

*Chair: M. Cuoco*

16:30-17 Giuseppe Allodi University of Parma (Italy) to be defined (on  $\text{Ba}_2\text{CaOsO}_6$   $^{43}\text{Ca}$  NMR)

17-17:30 Lorenzo Celiberti University of Vienna (Austria) Polarons in spin-orbit coupled systems

17:30-18 Anshu Kataria University of Parma (Italy) Muon Spectroscopy of Hidden Order in Double Perovskites

## 13 January

*Chair: S. Lupi*

9:30-10 Leonid Pourovskii École Polyt., Palaiseau (France) Anisotropic spin Hamiltonians and low-temperature magnetic phases in triangular-lattice rare-earth compounds

10-10:30 Liviu Hozoi IFW Dresden (Germany) Direct vs charge-transfer exchange in d-/f-electron Kitaev-Heisenberg magnets

10:30-11 Valerio Scagnoli ETHZ-PSI (Switzerland) Coupling between electronic band structure and magnetic ordering in  $\text{NaOsO}_3$ : insights from magnetization dynamics experiments

**11-11:30 Coffee break**

*Chair: S. Sanna*

11:30-12 Stefano Lupi Univ. Rome "La Sapienza" (Italy) Low Energy Electrodynamics of Topological Materials

12-12:30 Paola Gentile CNR SPIN Salerno (Italy) Twisting spins, shaping topology: spin-orbit coupling as a tool for topological phenomena in low-dim systems

12:30-13 Domenico Di Sante Univ. of Bologna (Italy) Spin-Berry curvature in kagome metals

13:00 **CONCLUSION**